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MSPC Advisory Circular

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF AIR PROGRAMS • MOBILE SOURCE POLLUTION CONTROL PROGRAM

A/C No. 4A

November 14, 1972

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Subject: Unscheduled Maintenance

A. Purpose

The purpose of this Advisory Circular is to define unscheduled maintenance, provide prior EPA approval for certain unscheduled maintenance, and list the criteria by which EPA will individually approve all other engine and fuel system unscheduled maintenance. This Advisory Circular supersedes Advisory Circular No. 4 of the same subject.

B. Background

Since Advisory Circular No. 4 was published on February 25, 1972, several questions have arisen regarding the performance of unscheduled maintenance on components other than those listed in the Circular. To avoid confusion, there is need for a specific definition of unscheduled maintenance, and for a description of the criteria upon which EPA will approve unscheduled maintenance other than the unscheduled maintenance listed in this circular.

C. Applicability

The provisions of this Advisory Circular are applicable to the 1974 model year and are effective immediately.

D. Definition of Unscheduled Maintenance

1. For light duty vehicles, unscheduled maintenance is any adjustment, repair, disassembly, or replacement of vehicle or engine components or systems which is performed to correct a part failure or vehicle malfunction which is evidenced by a significant overt indication such as persistent misfire, vehicle stall, overheating, fluid leakage, loss of oil pressure, or charge indicator warning. Maintenance performed under 40 CFR 85.90(a)(1)(ii), (vi), (vii), (viii), or in some cases, (ix), or 40 CFR 85.90(a)(2) or (3) is unscheduled maintenance. It should be noted that the component in question, as well as the respective mileage points, are significant in classifying a maintenance operation. For example, spark plug replacement at 24,000 miles is part of the engine tune up, but at 32,000 or 33,127 miles, the replacement of a misfiring spark plug would be unscheduled maintenance. Performance of optional idle speed adjustment at the 4,000 mile test point would be unscheduled maintenance.

2. For heavy duty engines, unscheduled maintenance is any adjustment, repair, or replacement of engine components or systems which is performed to correct a part failure or vehicle (if the engine were installed in a vehicle)

malfunction which would be evidenced by a significant overt indication such as persistent misfire, engine stall, overheating, fluid leakage, loss of oil pressure, or charge indicator warning. Maintenance performed under 40 CFR 85.111 (a) (1) (ii) (v), (vi), (vii), or, in some cases, (viii), or 40 CFR 85.111 (a) (2), or 40 CFR 85.131 (a) (1) (ii), (iv), (v), (vi), or in some cases, (vii), or 40 CFR 85.131 (a) (2) is unscheduled maintenance. It should be noted that the component in question as well as the respective hourly point are significant in classifying a maintenance operation. For example, spark plug replacement at 500 hours is part of the engine tune-up, but at 624 or 687 hours, the replacement of a misfiring spark plug would be unscheduled maintenance. Performance of optional idle speed adjustments at the 125-hour test point would be unscheduled maintenance.

E. Criteria for Approval of Unscheduled Maintenance

1. Durability Vehicles or Engines: Engine or Fuel System Maintenance for Which Prior Approval is Given. The Appendix lists those engine or fuel system components which, for the purpose performing unscheduled maintenance during certification mileage accumulation, EPA judges are not likely to significantly affect emissions. Therefore, under the authority of 40 CFR 85.90(a)(1)(ix), EPA hereby gives prior approval to perform corrective, but not preventive, maintenance on such components. Such maintenance does not require "before" and "after" emission tests and does not need to be reported to EPA.

2. Durability Vehicles or Engines: Engine or Fuel System Maintenance Allowed by the Regulations. Performance of engine or fuel system maintenance listed in 40 CFR 85.90(a)(1)(ii), (vi), (vii), or (viii), or 40 CFR 85.111(a)(1)(ii), (v), (vi), or (vii), or 40 CFR 85.131(a)(1)(ii), (iv), (v), or (vi) does not require prior EPA approval. In most of these cases, however, the performance of maintenance is contingent upon the existence of a specific condition, e.g., persistent misfire, stalling at stops, or leaks, which EPA shall be given the opportunity to verify before the maintenance may be performed.

a. The maintenance performed under 40 CFR 85.90(a)(1)(ii), (vi), (vii) (leaks in the fuel system only), or (viii), or 40 CFR 85.111 (a)(1)(ii), (v), or (vii), or 40 CFR 85.131(a)(1)(ii), (iv), or (vi) may reasonably be expected to affect emissions and therefore requires "before" and "after" emission tests and needs to be reported to EPA, along with an engineering report of any malfunction diagnosis and the corrective action taken. Only those spark plugs that caused a persistent misfire may be replaced.

b. Other unscheduled maintenance performed under 40 CFR 85.90(a)(1)(vii) (leaks in the engine lubrication system and cooling system only), 40 CFR 85.111(a)(1)(vi), or 40 CFR 85.131(a)(1)(v) may not reasonably be expected to affect emissions and therefore does not require "before" and "after" emission tests and does not need to be reported to EPA.

3. Durability Vehicles or Engines: Engine or Fuel System Maintenance not Allowed by the Regulations. Any engine

or fuel system maintenance on durability vehicles or any maintenance on durability engines other than that cited in Sections E.1 or 2 above, will require prior approval from EPA before it can be performed, in accordance with 40 CFR 85.90(a)(1)(ix), 40 CFR 85.111(a)(1)(viii), or 40 CFR 85.131(a)(1)(vii). Such maintenance is subject to the provisions of 40 CFR 85.90(b), or 85.111(b), or 85.131(b), whichever is applicable, which requires immediate reporting of "before" and "after" emission test results, as well as a record of all pertinent maintenance performed, including an engineering report of any malfunction diagnosis and the corrective action taken. The criteria upon which such approval will be based are as follows:

a. An opportunity for verification by EPA that the need for maintenance or repairs is indicated by an engine or fuel system malfunction or part failure which is evidenced by a significant overt indication such as persistent misfire, vehicle stall, overheating, fluid leakage, loss of oil pressure, or charge indicator warning;

b. A preliminary determination by EPA that such maintenance or repairs will not result in a significant change in the engine-system combination; and

c. A determination by EPA that, except for removal and replacement of spark plugs, removable pre-chambers, or fuel injection components, the performance of maintenance will not require direct access to the combustion chamber.

4. Durability Vehicles: Maintenance on Non-Engine or Non-Fuel System Components. Maintenance on durability vehicle components

which are not part of the engine or fuel system does not require prior EPA approval. However, in accordance with 40 CFR 85.90(a)(2), such maintenance shall be performed only as a result of part failure or vehicle system malfunction. EPA shall be given the opportunity to verify such part failure or vehicle system malfunction before the maintenance may be performed. At such time as EPA is given opportunity to verify such part failure or vehicle system malfunction, EPA will determine whether the performance of maintenance may reasonably be expected to affect emissions.

a. If EPA determines the performance of such maintenance may reasonably be expected to affect emissions, such maintenance requires, in accordance with 40 CFR 85.90(b), "before" and "after" emission tests and immediate reporting of test results, as well as a complete record of all pertinent maintenance performed, including an engineering report of any malfunction diagnosis and the corrective action taken.

b. If EPA determines the performance of such maintenance may not reasonably be expected to affect emissions, such maintenance does not require "before" and "after" tests and does not need to be reported to EPA.

5. Emission Data Vehicles and Engines: Maintenance on all Components.

a. In accordance with 40 CFR 85.90 (a) (3), 85.111 (a) (2), or 85.131(a) (3), engine idle speed may be adjusted at the 4,000-mile or 125-hour test point without prior EPA approval. Such maintenance may reasonably be expected to affect emissions and therefore requires "before" and "after" emissions tests and needs to be reported to EPA.

b. In accordance with 40 CFR 85.90 (a) (3), 85.111 (a) (2), or 85.131 (a) (2), all other emission data vehicle or engine maintenance does require prior EPA approval. Any such maintenance which EPA determines may reasonably be expected to affect emissions also requires "before" and "after" emission tests, and a complete record of all pertinent maintenance performed, including an engineering report of any malfunction diagnosis and the corrective action taken.

6. Durability and Emission Data Vehicles and Engines: General Applicability

Although Sections E. 1-6 above do not require that manufacturers request prior approval or report all maintenance concerning test vehicles and engines, manufacturers are encouraged to consult with EPA prior to the performance of any maintenance which does not clearly fit into one of the above categories, e.g., part of the fuel system. Observance of such a procedure will greatly reduce the possibility of a test vehicle or engine being subsequently disallowed for the incorrect performance of maintenance.

Mobile Source Pollution
Control Program

**MAINTENANCE SCHEDULE FOR LIGHT
AND HEAVY DUTY GASOLINE ENGINES**

Maintenance on the following items may be conducted without prior approval, does not require "before" and "after" tests, and does not need to be reported to EPA.

1. Front end drive belts (other than air pump)
2. Front end pulleys (other than air pump)
3. Fan and spacer
4. Alternator, brackets, and wiring harness (excluding ignition wires)
5. Heater hoses, clamps, and brackets
6. Radiator, radiator hoses, and attaching parts
7. Fuel lines and filter
8. Rocker arm covers, oil fill cap and gaskets
9. Exhaust manifolds and gaskets (providing exhaust manifold is not part of a thermal reactor or air injection system)
10. Transmission and engine dipstick, tubes, and attachment parts
11. Crankshaft damper
12. Engine mounts and attaching bolts
13. Power steering pumps, brackets, clamps, and hoses
14. Thermostat and housing
15. Starter motor, wire harness and solenoid
16. Transmission cooler lines, hoses, and clamps
17. Flywheel, clutch housing, and clutch assembly
18. Air conditioning compressor assembly, evaporator lines, and brackets.
19. Battery, cables, and attaching parts
20. Oil pan and gaskets
21. Front cover and gaskets
22. Crankshaft front and rear oil seals
23. Side cover and gaskets
24. Oil pump, drive, and pick-up screen
25. Water pump and gaskets
26. Oil pressure and temperature sending units

MAINTENANCE SCHEDULE FOR HEAVY DUTY DIESEL ENGINES

Maintenance on the following items may be conducted without prior approval, does not require "before" and "after" tests, and does not need to be reported to EPA.

1. Front end drive belts and pulleys
2. Fuel lines and fuel filter
3. Rocker arm covers, oil fill cap, and associated gaskets
4. Exhaust manifolds and gaskets (provided exhaust manifold is not part of a thermal reactor or air injection system)
5. Engine dipsticks, tubes, and attaching parts
6. Crankshaft damper
7. Engine mounts and attaching parts
8. Water pump, thermostat, housing, and associated gaskets
9. Starter motor and solenoid
10. Flywheel
11. Oil pan and gaskets
12. Front cover and gaskets
13. Crankshaft front and rear oil seals
14. Oil pump, drive, and pick-up screen
15. Oil pressure and engine temperature sending units
16. Oil cooler, tubing, filter, and associated gaskets.